

Effects of *vermicomposts* on growth and marketable fruits of field-grown *tomatoes*, peppers and strawberries

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Summary

Vermicomposts, produced commercially from cattle manure, market food waste and recycled paper waste, were applied to small replicated field plots planted with *tomatoes* (*Lycopersicon esculentum*) and bell peppers (*Capsicum annuum grossum*) at rates of 10 t ha⁻¹ or 20 t ha⁻¹ in 1999 and at rates of 5 t ha⁻¹ or 10 t ha⁻¹ in 2000. Food waste and recycled paper *vermicomposts* were applied at the rates of 5 t ha⁻¹ or 10 t ha⁻¹ in 2000 to replicated plots planted with strawberries (*Fragaria* spp.). Inorganic control plots were treated with recommended rates of fertilizers only and all of the *vermicompost*-treated plots were supplemented with amounts of inorganic fertilizers to equalize the initial N levels available to plants in all plots at transplanting. The marketable tomato yields in all *vermicompost*-treated plots were consistently greater than yields from the inorganic fertilizer-treated plots. There were significant increases in shoot weights, leaf areas and total and marketable fruit yields of pepper plants from plots treated with *vermicomposts* compared to those from plots treated with inorganic fertilizer only. Leaf areas, numbers of strawberry suckers, numbers of flowers, shoot weights, and total marketable strawberry yields increased significantly in plots treated with *vermicompost* compared to those that received inorganic fertilizers only. The improvements in plant growth and increases in fruit yields could be due partially to large increases in soil microbial biomass after *vermicompost applications*, leading to production of hormones or humates in the *vermicomposts* acting as plant-growth regulators independent of nutrient supply.

Keywords: *Vermicomposts*; field crops; microbial biomass; humates